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ABSTRACT

Sixty skilled and 60 less-skilled readers were tested for oral reading skills at the end of one, two, and three years of reading instruction, to study the acquisition of reading fluency. A 3 x 2 x 3 ANOVA was used to analyze the influence of years of practice and instruction, reading skill, and levels of word accuracy on oral reading fluency. Results indicated that each of the variables investigated had a significant influence on reading fluency. The relationship between comprehension and fluency scores was significant in each sample but was greatest at the end of the first and second years. Differences between skilled and less-skilled readers appeared to be best explained within an automatic information process theory of reading. (Author/AA)

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The Acquisition of Reading Fluency by Skilled and Less Skilled Readers In Grades One, Two and Three

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The Acquisition of Reading Fluency By Skilled and Less Skilled Readers In Grades One, Two and Three

A fluent reader has been defined as one who makes optimal use of all the redundancy in a piece of text (Smith, 1971). For comprehension to take place the meaning of individual words must be remembered and integrated into the grammatical and semantic organization of the text, and the results related to general knowledge of the world and specific knowledge of the subject of the text message (Weber, 1976).

The process of integrating words into grammatical and semantic organization has been argued to be partially due to the reader's facility in separating sentences into phrase-size units of information (Schlesinger, 1968; Levin & Turner, 1969; Levin & Kaplan, 1970). Poor comprehenders, in contrast with good comprehenders, appear to fail to utilize the interword relationships to organize text into phrase-size units and attend predominately to each word in the text (Golinkoff, 1976). Thus it has been assumed by some scholars that the acquisition of the ability to segment or organize text into phrase-size units is an essential component in the development of fluent reading and necessary for comprehension to take place.

Evidence has been reported that demonstrates young readers who exhibit different levels of reading competency appear to use different processing strategies (Biemiller, 1970; Mason, 1977). However, there is very little information available to suggest what stages of text organization the young reader passes through in order to bridge the gap between word by word reading and the consistent segmentation of

sentences into phrase-size units. Available eye voice span (EVS) studies (Levin & Turner, 1968; Reswick, 1970) and eye movement studies (Taylor, Frackenpol & Pattee, 1960) do suggest, below grade four, that young and beginning readers do not end their EVS's at phrase boundaries and have a considerably large number of fixations per 100 words. However, EVS's are not increased by merely reading faster. Furthermore, there is general agreement that beginning and even young readers find it difficult to use syntact-semantic and graphic information at the same time. (Gibson & Levin, 1975). What units of information do beginning and young readers, prior to grade four, use to process text? Do discernible differences exist between the ways words are grouped across yearly intervals of reading practice and instruction? Do skilled and less skilled silent readers significantly differ in the acquisition stages of reading fluency?

Smith (1971) argues that the major difference between the beginning reading and fluent reading is the manner in which the reader makes use of the syntax. The fluent reader predicts surface structure information from syntax but the beginning reader deduces meaning from the surface structure. He is, according to Smith, forced to analyze all the constituents of the surface representation in order to apply his syntactic skills. Yet to acquire knowledge about redundancy and to learn to read for meaning, the beginning reader supposedly must keep moving ahead of losses in sensory store and short term memory. He must read relatively fast. I take Smith's argument to mean, among other things, that the beginning reader must get beyond word by word reading as soon as possible but we cannot expect him to immediately be reading in phrase-size units. Somehow he must learn to selectively distribute his

attention to the most salient features of syntactic redundancy that signal the potential relationships between the lexical meanings of words and other aspects of semantic information. But what enables the beginning reader to take this step? Does his language competency in speech segmentation prepare him to analyze lower order units than the sentence? And how does the beginning reader learn to equally or differentially distribute his attention to both syntactic cues and the graphic cues?

Danks and Gluksberg (1975) in reviewing research with adults and older children concerned with speech segmentation, conclude that researchers are in general agreement that speech is organized as it is processed. Yet, where segmentation occurs is not agreed upon and may be governed by factors independent of linguistic theory. Few studies are available with young children just prior to formal reading instruction. However Holden and MacGintie (1972) carried out a study with kindergarten children to describe their speech segmentation in retelling oral statements. Those who correctly segmented the statements grouped function words with either preceding or succeeding content words. Accuracy in segmentation appeared to depend on the frequency of the words with lexical meaning compared to the incidence of function words. Frequently words were joined across phrase boundaries and utterances were difficult for children of this age to analyze into lower order units. Thus, even though beginning readers undoubtedly bring a vast knowledge of the grammatical rules of language to reading, some may have considerable difficulty in relating rules for segmentation to processing continuous text. Beger and Perfetti (1977) hint at a similar possibility when they suggest that ineffective encoding and integration of language [illegible]

account for reduced performance in paraphrase recall by less skilled readers. Hence, it seems possible that some beginning readers may face a relatively unique task in learning to organize text into higher order units and a few may suffer from a general deficit in the short term encoding, sequencing and integrating aspects of listening and reading comprehension. One might tentatively infer that beginning readers attend to single words and slowly begin to group words into two word units composed of a function and a content word rather than larger word group units.

Weber's (1970) analysis of the oral reading of beginning and young readers indicates that they do use grammatical cues in the surface structure because approximately 90 per cent of their substitution errors were grammatically acceptable up to the point in the sentence where the substitution occurred. However, when a substitution eventually created an ungrammatical sentence, good readers corrected twice as may errors as poor readers. First graders tolerated 39 per cent of the ungrammatical sentences. Therefore, these young readers often did not attend to the syntax cues following a substitution. Thus one may infer that the beginning readers in Weber's study were not organizing text consistently into phrase groups but were able to read in word groups large enough to predict the grammatical form class of individual words. Coupling a function word and a content word, while processing a sentence would enable the reader to use two word units to break through word by word reading.

Smith has stated that practice plays an important role in enabling the reader to learn to use syntactic cues. Laberge and Samuels (1975) would appear to agree with this view but would specify the necessity

of accuracy and automaticity as the essential factors which allow the reader to shift his attention to the organization of words into higher order units while processing text information. Thus the outcome of practice is dependent on the acquisition of accuracy and automaticity. They suggest that the beginning reader starts to organize some of the words into short groups and sufficient repetition strengthens these units. During the repeated reading of material, the reader organizes words into higher order units even before lower order units have achieved a higher level of automaticity. But this may not necessarily mean that the unitizing of words has taken place since the reader may not give attention to the syntactic information even though it is available. From this viewpoint, progress from word by word reading to reading in phrase size word groups is a matter of slowly shifting more attention away from the graphic information and giving proportionately greater attention to the syntactic information.

Beginning and young readers who cannot shift their attention to the syntax cues should make much slower progress toward reading in phrase-size units or lower order units. Those who can selectively distribute their attention to text segmentation or the syntax would appear to have high accuracy and automaticity at the lower code levels of the graphic information to be able to begin to shift their attention consistently toward an increasingly higher order grouping of words during reading. The work of Shanweiler and Libermann (1972) would tend to support the importance of word accuracy to reading acquisition. However, they state that reading with little comprehension is primarily a consequence of reading words poorly rather than reading connected text. Therefore, they tend to exclude the importance of organizing text into higher

order units. Whether or not one of these points of view is more accurate than the other has not been tested empirically. To the investigator's knowledge the relationship between the fluency and comprehension of beginning or young readers has not been studied.

In short, little or no empirical information exists to suggest how the beginning reader progresses from word by word reading to reading in phrase-size units by grade four. In addition, little attention has been given to the relationship between comprehension and stages of growth in the acquisition of fluent reading. Before comprehensive explanations can be given about how reading fluency is obtained, it will be necessary to find ways of describing how the beginning and young reader organize or segment text sentences into higher order units and then design experimental research to test competing theories at different stages leading to consistent processing of text in phrase-size units.

The purpose of the present study is to determine the effects of years of teaching practice, levels of reading skill and levels of word accuracy and comprehension on reading fluency. The secondary purpose is to generally assess the relationship between reading fluency and comprehension following oral reading after one, two and three years of reading instruction.

Method

Subjects and Materials

Twenty skilled and twenty less skilled readers were selected by a stratified random sampling procedure from the first, second and third grade populations of a large suburban school district. Students were defined as skilled readers who were below grade level at the end of

school year on a standardized achievement test and who could not fluently read material normally used for grade level instruction as judged by their teachers. Skilled readers were defined as those students who were reading at or above grade level according to standardized reading achievement test scores and who fluently read materials normally used for grade level instruction based on their teacher's judgment. Each student was individually administered an oral reading test (Sucher & Allred, 1973) by a trained examiner. Each administration was tape recorded. The following criterion of word accuracy and passage comprehension was used to establish the level of fluency associated with material each student: 1) could read independently (97% accuracy in word recognition and better than 80% accuracy in comprehension), 2) should be given for instructional purposes (92 to 96% accuracy in word recognition and 60 to 80% accuracy in comprenension), and 3) would find too frustrating for most ordinary reading purposes (less than 92% word recognition accuracy and less than 60% comprehension accuracy). All original error markings and independent instructional and placement levels were reviewed by independent scores to assure accuracy in coding.

Procedure

Seven categories of oral reading behavior were operationally defined to establish a scale of fluency for processing continuous text into higher order units (Aulls, 1977). The lowest fluency category was word by word reading. The highest category on the scale required reading consistently in phrase-size units, complete preservation of external and internal sentence punctuation, and adequate expressive interpretation of the semantic content. The lowest category of organizing text was assigned a score of one and the highest category was assigned a score

of seven.

Each oral reading tape was analyzed independently by two trained scorers who coded the level of fluency with which each reader read each sentence aloud. Disagreements between codings were jointly resolved and final code was established.

Coders listened to the tapes and marked the boundaries between the text units the reader orally produced and those he anticipated for each sentence. Normally these segments are easily distinguished as word by word utterances, or larger phrase-size utterances by the reader's hesitations and voice inflection. A beginning reader may demonstrate a consistent strategy for grouping word units or vary his strategy from sentence to sentence throughout the text. After coding each sentence according to the score assigned to the seven scaled categories of fluency, the raw score for each passage was calculated. The mean of the combined raw scores for all passages read within the criteria of word accuracy and comprehension at the independent, instructional and frustration levels were then calculated separtely. For analysis purposes, the average fluency score for each reader was the mean fluency score for all passages he was able to read until he dropped below the frustration level criterion score for word and comprehension accuracy.

In short, the face validity of the fluency score is based on the assumption that the reader's oral production of text in word units or word group units and the preservation of punctuation reflects his ability to use syntactic and semantic information within sentences to organize continuous text into higher order units during processing. High inter-rater reliability has been demonstrated for categorizing readers' oral reading responses into levels of fluency based on text samples

of at least 100 words (Allington,1976).

A 3 x 2 x 3 mixed model analysis of variance design was used: one, two and three years of reading practice and instruction x two types of reading skill (skilled versus less skilled) x three criterions for reading performance(material read with 97 per cent word accuracy and greater than 80 per cent comprehension; material read with 90 to 92 per cent word accuracy and 60 to 80 per cent comprehension ; and material read with less than 92 per cent word accuracy or less than 60 per cent comprehension).

Pearson product moment correlations were separately calculated for each years of instruction and practice group to estimate the magnitude of the correlation between fluency and number of questions answered correctly for those passages representing each student's reading instructional level.

Results

The main effects of years of practice and reading performance had a significant influence on reading fluency, with $F(2,114) = 58.01$, $p < .001$ and $F(1,114) = 156.39$, $p < .001$ respectively. There was a significant interaction between years of practice and levels of reading performance with $F(2,114) = 10.05$, $p < .001$.

The main effects of criterions for word accuracy and comprehension had a signficant influence on fluency with $F(2,228) = 161.35$, $p < .001$. There were no significant interactions between criterion levels and years of practice. However, there was a significant interaction between criterion levels and levels of reading performance $F(2,228) = 11.42$, $p < .001$ as well as criterion levels, years of practice and levels of practice $F(4,228) = 6.07$, $p < .001$.

Generally speaking, the size of the F values for main effects in contrast with interactions, both between and within subjects, suggests that reading fluency is strongly influenced by years of practice, differs according to the reader is skilled or less skilled and changes according to difficulty of the material the reader can process with different degrees of word accuracy while maintaining a minimum level of understanding of its semantic content. However, these general results must be qualified due to the lack of independence of one or more levels of each of these three factors. Therefore results of the multiple means tests for each main effect and the simple effects tests for interactions associated with each main effect will be reported and discussed.

Years of Practice, Reading Performance and Fluency

The results of Duncan Multiple Means Comparisons between the mean fluency of readers of the end of one year 2.25, two years 3.26 and three years 3.70 of practice and instruction indicated that students after one year of practice and instruction significantly differed from students given two and three years of reading instruction and practice. $K = 2 = R2$ .8072 and $K = 3 = R2$ .8831 (114) = 1.01 and 1.45 respectively, $P < .001$. The average first grader reads word by word and somewhat in two word phrase units. After two years of practice and instruction, the average student reads word by word and in some three word phrase units. After three years of practice and instruction the average student read predominately in phrases, with little word by word reading but made errors that violated the grammatical acceptability of the phrase units in more than 20 percent of the error occurrences. The difference between the mean fluency scores after two and after three years of practice and instruction was not significant.

Skilled readers obtained a significantly higher mean fluency score (3.77) than less skilled readers (2.36), $k = 2 = R2\ .8072\ (114) = 1.41$, $P < .001$.

Simple effects analysis of the years of practice X level of performance were carried out. First, the simple effects of the levels of reading performance within each year of practice and instruction was analyzed. The results indicated that after one, (1p) two (2p) and three years of practice (3p) and instruction, skilled readers obtained significantly higher mean fluency scores than less skilled readers with $F1p(1,114) = 346.36$, $p < .001$; $F2p(1,114) = 119.46$, $p < .001$; and $F3p(1,114) = 49.96$, $p < .001$. Second, the simple effects of different years of practice for skilled readers and then for less skilled readers was analyzed. The results for less skilled readers indicated, at the $p < .001$ level of confidence with 1 and 114 degrees of freedom, all combinations of years of practice had a significant influence on reading fluency. However, for skilled readers two and three years of practice did not have a significant differential influence on reading fluency at the $p < .001$ level of confidence.

The means for years of practice, levels of performance and the years of practice X levels of performance interactions are shown in Table 1.

Insert Table 1 about here

A careful study of these means suggests that skilled and less skilled readers appear to differ in their overall fluency averaging over the range of passages they were able to read until word accuracy and comprehension considerably declined. Hence fluency develops differentially

across the three year period of reading practice and instruction. The major source of the years of practice X levels of performance interaction appears to be due to a lack of significant fluency growth among skilled readers between the second and third years of practice and instruction. By the end of a three year period, 63 percent of the students are reading largely in phrase units as shown in Table 2. But the percentage of students who read in phrases and preserve the syntactic structure of most sentences is not substantially larger for the group who has completed two or three years of practice and instruction. This conclusion is supported by the percentage of students who fall within levels 3, 4 and 5 of fluency at the end of three years of reading practice and instruction.

Insert Table 2 about here

Criterion Levels for Word Accuracy and Comprehension and Reading Fluency

The mean fluency score at the frustration criterion level (FCL) was 2.52. It was 3.05 at the instructional criterion level (ICL). At the independent criterion level (INCL), the mean fluency was 3.59. The results of the Duncan Multiple Range means comparison tests between the mean fluency at each criterion level for word accuracy and comprehension indicated that each of the three mean comparisons was significant, $K = 2 = R2$ .2061 and $K = 3 = R3.2125$ (228) = .53, 54 and 1.07 respectively, $p < .001$. The findings suggest that the higher the word recognitition accuracy and comprehension criterion for passages read aloud, the higher the level of the students reading fluency.

There was an interaction between criterion levels for passages and the reading skill of the students. A simple effects analysis was carried out of the influence of skilled (S) and less skilled (LS) reading performance across passages within each criterion level. This analysis was based on approximations to the appropriate degrees of freedom and the denominator of the F ratio according to Satterthwaite (Winer 1962, p. 201). The results of the simple main effects analysis was $F(2,390)=165.74$, $p < .001$. It appears then that skilled readers mean fluency scores were higher than less skilled readers for each criterion level of word accuracy and comprehension. To determine the influence of criterion levels on the fluency of skilled readers and then less skilled readers the simple main effects of criterion levels on each group was calculated. Again an approximation to the appropriate df for the denominator of each F ratio and the denominator of each F ratio was calculated according to Satterthwaite (Winer 1962, p. 201) The results for skilled readers was significant with $F(2,390) = 91.74$, $p < .001$. The simple main effects of criterion levels for less skilled readers was significant $F(2,390) = 41.17$, $p < .001$. Hence, it appears that at least two of the criterion levels means significantly and differentially influence both the skilled and less skilled readers reading fluency.

A significant three way interaction was obtained between years of practice, levels of reading performance and criterion levels for word recognition accuracy and comprehension. It was of interest to determine whether significant differences existed between the mean fluency for each criterion level at one or more levels of the combinations of years of practice and reading performance. A simple main effects analysis was made of

the influence of criterion levels on the six combinations of years of practice and levels of performance using Satterthwaite's recommendations for approximations of the denominator of the F ratio and its degrees of freedom (Winer, 1962). The results for year one, skilled readers, year one less skilled readers, year two skilled readers, year two less skilled readers, year three skilled readers and year three less skilled readers respectively are $F(2,390) = 158.70$ $p<.001$, $F(2,390) = 2.13$ $p<.20$, $F(2,390) = 25.60$, $p<.001$, $F(2,390) = 10.54$ $p<.001$, $F(2,390) = 24.42$, $p<.001$ and $F(2,390) = 28.96$, $p<.001$. Thus, except for less skilled readers who had one year of practice and instruction, at least one of mean fluency scores for the three criterion levels was significantly different from the others.

In addition to the preceding analyses, the simple main effects of levels of reading performance on the mean fluency of each criterion level within each year of practice and instruction. The results indicated that after one and two years of practice and instruction the mean fluency of skilled and less skilled readers within each criterion level was significantly different, $F(2,390) = 6.47$, $p<.005$ for one year and $F(2,390) = 3.89$ $p<.025$ for two years. After the third year of instruction and practice, the simple main effect of criterion level on skilled and less skilled was not significant $F(2,390) = .8675$.

The means in Table 3 for within subjects factors offers an overall picture of the fluency means.

Insert Table 3 about here

During the first three years of reading practice and instruction skilled readers obtained the highest level of fluency on the independent

level criterion, for word accuracy and comprehension,a lower fluency level at the instrutional level criterion and the lowest fluency on the criterion for the frustration level. In contrast, it was not until after the third year that less skilled readers obtained the preceding pattern displayed by skilled readers. Thus after one and two years of practice and instruction, less skilled readers do not appear to be able to change their level of fluency even for passages where they know 97 percent of the words and comprehend 80 percent or more of the information needed to answer questions about passage meaning.

In summary, the major results of the within subjects analyses suggest that less skilled readers require three years of instruction and practice to be able to organize text into progressively higher order units even when they know the majority of words in a text passage. In contrast, skilled readers appear to shift their attention, by the end of one year of instruction and practice, in order to organize text into higher order units according to the proportion of words they can accurately recognize. Overall, the higher the word accuracy of the reader the greater the likelihood that he will shift his attention to the use of syntactic structure to organize text into higher order units of meaning. The progression of fluency growth across years of practice and instruction appears to involve a shift toward more consistent attention to the syntactic structure which is related to the reader's level of accuracy in word recognition

The Relationship between Comprehension and Reading Fluency

The passages for each student's reading instructional level were utilized to assess the correlation between number of questions answered correctly following oral reading of the passage and the average fluency exhibited across the passages read. All Pearson product moment correlations

were significant beyond the $p < .025$ level of confidence. After one year of practice and instruction the magnitude of the correlation was .63. After two years of practice and instruction it was .65. However after three years, the correlation dropped to .32. These correlations suggest that fluency is significantly and substantially related to oral reading comprehension after one and two years of practice and instruction. However, by the end of three years of instruction and practice this relationship decreases markedly. In part, this decrease suggests that lack of being able to read in phrase-size units is substantially related to recognition responses. However, once the reader can consistently read in phrase-size units, other variables become more important to being able to answer recognition questions at a variety of cognitive levels.

Discussion

The data from the present study clearly establishes that years of instruction and practice has a significant influence on the acquisition of fluency. Comparisons between the fluency growth of skilled readers suggests that the most significant changes in overall fluency occur between the first and second year of practice and instruction. However, less skilled readers only made significant changes in growth between the first and second and second and third years of practice and instruction.

By the end of two years of practice and instruction the average skilled reader is reading in phrases with some word by word reading and violates syntax in no more than 20 percent of his oral reading errors. He does not go beyond this level by the end of the third year if we only consider his average fluency which includes materials at his

independent, instructional and frustration levels. However, over 62 percent of the skilled readers after three years were reading material at their independent level in either phrase-size word groups without violating syntax or reading in phrase-size word groups consistently and preserving all external punctuation. This same pattern occurs after two years of practice and instruction but only for about 44 percent of the skilled readers. In grade one only 25 percent of the skilled readers displayed the ability to read material at their independent level in phrase-size groups without violating syntax in less than 20 percent of their errors.

If we can assume that previous studies are accurate in stating that the average fourth grader's EVS's terminate consistently at phrase boundaries, one could expect that during the fourth year of practice and instruction, most skilled readers and some less skilled readers will learn to transfer their attention to the optimum use of syntactic cues and consistently organize text into phrases within their reading instructional level.

Less skilled readers do not show the same pattern of average fluency growth as the skilled readers. By the end of three years of instruction and practice the average less skilled reader reads word by word with some, three, word higher order grouping. His fluency at the independent, level after one year of instruction, is predominately word by word. After two years of instruction, only one percent of the less skilled readers group words in phrase-size units without violating syntax less than 20 percent of the time. Yet by the end of three years of instruction, 25 percent are reading material at the independent level with the same level of fluency as skilled readers at the end of

one year of practice and instruction. Assumedly, most of them could take two more years of practice to reach the same fluency level as skilled readers reach at the end of the second year of practice.

At the end of each year skilled readers significantly differed in their average fluency from less skilled readers. Thus either specific language competency or attentional strategies should be seriously considered as potentially important factors for explaining differences between the acquisition of reading fluency of skilled and less skilled readers. The yearly fluency growth of skilled readers appears to progress from higher to lower levels of fluency according to word accuracy and comprehension criterions. Less skilled readers do develop this pattern at the end of the third year of practice. The attentional model stipulated by Laberge and Samuels (1975) appears to best explain these patterns. If a language comprehension deficit in processing localized language units (Berger & Perfetti, 1977) existed among the less skilled readers, they should not have been able by the third year to read material at the independent level in phrase-size word groups.

Average fluency was significantly and substantially related to comprehension of material read aloud after one and two years of reading practice and instruction. However, fluency had a low positive correlation after three years of practice and instruction. Five questions were asked after each oral reading passage and dealt with: 1) the main idea or topic 2) incidental factual information 3) sequential events 4) inference and 5) judgements. It appears that inability to read in phrase-size units can interfere with information pickup. However, once the reader can read in phase-size units and use the majority of the

syntactic redundancy without errors comprehension becomes a function of attention to the semantic information and direct access to prior knowledge. Thus a larger proportion of the variance in the comprehension scores of beginning and second year readers is related to lack of attention to the semantic content than for those who have had three years of practice and instruction and know more about the world.

In short this study provides considerable information about the influence of practice, criterions of word accuracy and levels of reading skill on the reader's progress from word by word reading to reading continuous text in phrase units. It supports the point of view that the development of fluency originates in the earliest stages of reading and plays an important role in the acquisition of information from text up to at least three years of reading practice and instruction. At this point, the skilled reader appears to begin to efficiently use the syntactic information to gain more direct access to the semantic content. However reading in phases may not strongly facilitate the application of the reader's potential to comprehend; but rather, his efficiency in acquisition of information.

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Table 1

Mean Fluency Scores for Between

Subjects Factors

Years of Practice/Instruction		Reading Performance	
		Skilled	Less Skilled
One year	2.26	3.33	1.20
Two years	3.26	3.88	2.65
Three years	3.70	4.15	3.25

Table 2

Percentage of Students After One, Two and Three Years of Practice and Instruction Who Fall Into Single or Combined Stages of Average Fluency

	Average Fluency on All Passages Read					
	1	2-3	4	5*	6	7
One year	47.4	36.8	13.2	2.6	0	0
Two years	13.5	40.5	27.0	16.2	1.8	0
Three years	2.7	35.1	43.2	18.9	1.1	0

*Students who read in phrases and preserve the syntactic structure of most sentences

Table 3

Mean Fluency Scores For

Within Subjects Factors

Criterion Levels for Word (W) and Comprehension (C) Accuracy

	>97% W/C > 80%	92-96% W/C 60-90%	> 92% W/C < 60%
Year one, skilled	4.05	3.15	2.7
Year one, less skilled	1.40	1.20	1.00
Year two, skilled	4.65	3.70	3.33
Year two, less skilled	3.00	2.80	2.15
Year three, skilled	4.55	4.10	3.50
Year three, less skilled	3.90	3.40	2.45